REMARKS

I. Introduction

Applicant gratefully acknowledges the Examiner's withdrawal of the previous rejections, which were based on the Larsen and Odell references. Although all of the claims presently stand rejected over newly cited art, Applicant respectfully requests the Examiner to reconsider the present application in view of the foregoing amendments and of the following commentary.

II. Summary of Amendments to the Claims and Support Therefor

Claims 1 – 16 are pending. By way of the foregoing amendments, claims 1, 5, 9, and 13 are amended to more particularly point out the invention in that the recited pipe lines are cleaned of iron sulfide deposits. Support for this amendment originates, for example, in the specification at page 1, lines 19 and 20 and at page 3, lines 5 – 7. The claims also are amended to emphasize that the claimed methods require the recited compositions to complex iron sulfide. Support for this amendment can be found in the original claims and throughout the specification.

Although the foregoing amendments are presented after the issuance of a final office action, Applicant submits that the amendments introduce no new matter or at least reduce the number of issues for consideration upon appeal. Accordingly, Applicant courteously requests the Examiner to enter the amendments.

III. The Office Action

A. Rejection of Claims Under 35 U.S.C. § 112, Second Paragraph

Claims 1 – 16 stand rejected under 35 U.S.C. § 112, second paragraph as being allegedly indefinite. Office Action at page 2. In support of this rejection, the Examiner first kindly brings to Applicant's attention that claim 1 does not completely recite the method steps as highlighted by a discrepancy between Applicant's clean and marked-up versions of the claim that was presented in Applicant's previous response.

Second, the Examiner alleges claims 1, 5, 9, and 13 to be indefinite because these claims allegedly do not recite the affirmative step of complexing iron sulfide by the addition of the recited composition. To the extent that this rejection may apply to the claims as amended, Applicant respectfully traverses this rejection.

The present claims encompass methodology that involves the complexing of iron sulfide via addition of a recited composition to dry gas or oil pipeline. Applicant submits that the claims are not subject to the examiner's expressed "indefiniteness" concern. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

B. Rejection of Claims Under 35 U.S.C. § 102(e)

1. The Ground for Rejection

Claims 1 – 4 and 9 – 12 stand rejected over U.S. patent No. 6,517,617 to Chartier *et al.* ("Chartier"). Office Action at pages 2-3. In the Examiner's opinion, Chartier discloses a method of cleaning oil product and natural gas pipelines that implicates a composition for removing iron sulfide. In this regard, the Examiner refers specifically to claim 1 of the reference that recites a foamed composition comprising water, ammonium chloride, and tetrakis(hydroxymethyl) phosphonium sulfate ("THPS"). The Examiner indicates that this rejection pertains inasmuch as the indefiniteness issues as discussed above remain unresolved. Applicant respectfully traverses this rejection to the extent that it may apply to the claims as amended.

2. Chartier Does Not Teach or Suggest the Recited Iron Sulfide Complexation

Chartier does not anticipate the present invention because the reference does not disclose a method for cleaning oil or dry gas pipelines that implicates the step of iron sulfide complexation. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). As the Examiner observes correctly, Chartier relates generally to the application of a foamed composition to pipes to prevent chemical and microbiological influenced corrosion of the pipes. *See* Chartier

at col. 2, ll. 59 – 67. Chartier contemplates a general formula for the foam composition that contains ammonium chloride and possibly contains THPS "for increased bio-static activity of coating." *Id.* at col. 5, l. 23 to col. 6, l. 56. A preferred foam composition as recited in claim 1 of the reference requires the presence of water, ammonium chloride, and THPS, among other components. Chartier further teaches that the foam acts *mechanically* within pipes to loosen biomass, debris, and other particles such as iron sulfide. *Id.* at col. 13, l. 63 to col. 14, l. 4.

By contrast, Chartier does not teach or suggest the claimed step of complexing iron sulfide with the specific recited composition. The present invention circumscribes a cleaning method by which iron sulfide is *chemically* removed by complexing the iron sulfide with the recited composition. At best, Chartier generically teaches the removal of iron sulfide from pipes by the mechanical action of applying a foam comprising water, ammonium chloride, and THPS, among other things. Because Chartier does not set forth each and every element of the claims, Applicant therefore respectfully submits that Chartier cannot and does not anticipate the claims. Accordingly, Applicant courteously requests the Examiner to reconsider and withdraw this rejection.

C. Rejection of Claims Under 35 U.S.C. § 103

1. Ground for Rejection

Claims 1 – 16 stand rejected under 35 U.S.C. § 103 as being allegedly obvious over WO 00/21892 ("Odell") in view of newly cited U.S. patent No. 5,753,180 to Burger ("Burger"). Office Action at pages 3-4. The Examiner relies upon Odell for its purported disclosure of treating iron sulfide deposits in oil wells with an aqueous composition of tetrakis (hydroxymethyl) phosphonium sulfate or chloride ("THPC") and an ammonium salt. According to the Examiner, Odell recognizes iron sulfide deposits as a source of fouling in the oil industry. Consistent, however, with Applicant's previous characterization of Odell (see Response filed February 5, 2003), the Examiner does not consider the reference to pertain to the treatment of oil and gas pipelines. Office Action at page 4.

In order to cure the "deficiency" of Odell, the Examiner cites to Burger for purportedly disclosing the removal of iron sulfide deposits from oil field pipeline systems by pigging and treating with a biocide. In this regard, the Examiner considers that Burger "recognizes the need to remove iron sulfide deposits from pipelines using a biocide treatment." *Id.*

Against this background, the Examiner concludes that it would have been obvious to the artisan of ordinary skill to have employed the composition of Odell in the method of Burger to arrive at the claimed invention. Underpinning this conclusion is the Examiner's beliefs that the "THPS and THPC compounds of Odell . . . are considered biocides" and that Burger discloses the convention of using "biocides for removal of iron sulfide deposits from pipelines." *Id.* Furthermore, according to the Examiner, the artisan would have expected the invention to result from this particular pairing of references because Odell and Burger each relate to the oil industry and solve "the same purpose." Applicant respectfully traverses this rejection.

2. Odell and Burger, Alone or in Combination With Each Other, Do Not Teach or Suggest the Claimed Invention

The prior art references or any combination thereof do not obviate the use of THPS or THPC compositions for the removal of iron sulfide from *dry gas* or *oil* pipelines because the references are limited to *aqueous* contexts. To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *See In re Royka*, 490 F.2d 981 (CCPA 1974), and MPEP § 2143. In the present context, the Examiner plainly acknowledged that Odell does not teach or suggest the use of THPS or THPC compositions in dry gas or oil pipelines. Office Action at page 4. More specifically, as discussed at length in Applicant's response filed on February 5, 2003, Odell teaches the use of such compositions in only *water systems*, such as formation waters in oil fields.

Similarly, the bacterial growth control method and composition taught by Burger is limited to *aqueous* applications in the oil industry. For example, the reference discusses control of sulfate-reducing bacteria in "waters associated with oil production systems" (col. 1, ll. 21 – 28) such as seawater (col. 1, ll. 37 – 45), waters produced from an oil reservoir (col. 1,

ll. 61 – 64), produced waters used for reinjection into injection wells (col. 2, ll. 22 – 28), and waters in water transportation pipelines (col. 6, l. 13). Moreover, the example in Burger relates to the treatment of steel pipelines used to transport seawater to oil field water injection wells. *See* Burger at Example, col. 8, l. 36 to col. 10, l. 24. Thus, Burger plainly does not teach or suggest that the disclosed method and biocide treatment should or could be applied in anything other than aqueous contexts.

By contrast to both Odell and Burger, the claimed methods are performed not in *aqueous* environments, but in *dry gas* or *oil* pipelines. Consequently, the references individually or in combination with each other fail to meet all of the claim limitations.

3. There Is No Motivation or Suggestion To Have Combined Odell and Burger

Even if Odell and Burger could be combined to arrive at the claimed invention, a proposition that Applicant does not endorse, neither of the references nor contemporaneous general knowledge would have motivated the skilled artisan to apply the compositions of Odell to pipelines, as taught by Burger. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). "There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). In the present context, the Examiner identified the alleged motivation in Burger, *i.e.*, the need to remove iron sulfide deposits from pipelines using a biocide treatment as a conventional procedure.

A fair reading of Burger or Odell, however, does not reveal any such prior art convention as urged by the Examiner. Burger teaches that inhibition of *sulfate-reducing bacteria* activity will reduce H_2S production, which can corrode certain metal surfaces to form iron sulfide. *See* Burger at col. 1, ll. 47 – 49 and col. 2, ll. 29 – 32. Accordingly, Burger discusses pigging and biocide treatments as mechanical and chemical methods, respectively, to control such bacteria. *Id.* at col. 3, l. 66 to col. 3, l. 1. In other contexts, surfactant-biocide treatments will control *bacterial activity* in thin biofilms. *Id.* at col. 3, l. 7 – 9. Burger also

discusses pigging alone to remove iron sulfide deposits. *Id.* at col. 3, l. 2 – 4 and col. 6, l. 15 – 19.

By contrast, Odell is silent as to the use of any biocide treatment. As noted correctly by the Examiner, Odell relates to the removal of divalent salt deposits, such as iron sulfide, from oil wells.

To sum, Burger relates to the application of a biocide to control sulfate-reducing bacteria on metal surfaces such as pipelines. In contrast to the Examiner's characterization of this reference, therefore, nowhere does Burger teach or suggest that it is conventional to use a biocide treatment to eradicate iron sulfide deposits from pipelines.

Against this factual background, the artisan would have had absolutely no motivation to apply the composition of Odell in the manner taught by Burger. Even if the artisan knew that THPS or THPC could be used as biocides, a proposition that neither reference advances, he still would never have sought to remove iron sulfide from pipelines by using the THPS or THPC compositions of Odell; this, because Burger simply does not suggest that a biocide, much less THPS or THPC, is appropriate or even useful for this purpose. Absent the benefit of Applicant's disclosure, therefore, the person of ordinary skill would not have been motivated to apply the recited THPS or THPC compositions to dry gas or oil pipelines to remove iron sulfide, as claimed.

Because the cited combination does not meet each limitation of the claims, and because one of ordinary skill in the art would have lacked the motivation to make such a combination, Applicant respectfully submits that the references do not obviate the claimed invention. Accordingly, Applicant courteously requests the Examiner to reconsider and withdraw this rejection.

IV. Conclusion

Having now addressed each outstanding issue, Applicant believes that the present application is now in condition for allowance. Applicant thus respectfully requests favorable reconsideration of the application as amended. If the Examiner feels that a telephone

interview would advance the prosecution of the present application, she is invited to contact the undersigned.

Respectfully submitted,

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The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.